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(54) **EASY OPEN REAM WRAP**

LEICHT ZU ÖFFNENDER RIESEINSCHLAG

ENVELOPPE DE RAMES À OUVERTURE FACILE

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Description

[0001] This invention relates to an easy open sealed ream wrap package that has been wrapped in a sheet of polymeric film.

[0002] Reams of cut paper for copy machines, computers, printers, and other applications are most commonly packaged for shipping, storage, and retail sale in ream wrappers made of various wrap materials. These wrap materials traditionally have been coated paper or plastic film. The wrap materials protect the wrapped paper product from physical damage and moisture pickup during shipping and storage. The wrap materials also protect the wrapped product from physical damage during repeated handling and stocking on retail shelves.

[0003] A major market area is the distribution of reams of paper as wrapped reams for sale in individual packages containing e.g. stacks of 500 sheets. Such distribution of reams of paper has placed increasing demands on the wrapper due to more frequent handling of the individual reams. Increased handling of the reams has resulted in more reams breaking open, damaging the wrapped paper product by allowing it to pick up moisture, tear, or get minor curl - physical damage that ultimately results in jams in the end-user's printer or copy machine. However the resultant ability of a package to avoid damage arising from handling means that the packaged product is more difficult to open.

[0004] The mechanical strength of seal seams when reams are wrapped in polyolefin films, in particular biaxially oriented polypropylene films, is often higher than that of the film itself, and therefore when a sealed pack is opened it is not only the seal seam which is broken apart. Typically, a tear propagates in an uncontrolled manner through the entire film upon opening. It is also difficult to find any way to undo the package other than by pulling at the envelope seal at one or other of the ends of the package.

[0005] There is a need to provide means for opening ream wrapped packages of paper that will enable both neat and easy opening.

[0006] Stacks of e.g. A4 size 80 gsm paper will have a length of about 300mm, a width of about 210mm and a depth of about 50mm. Such a stack can be wrapped in a sheet of polymeric film having a heat sealable coating on both its outer and inner surfaces. In order to form a wrap around a stack of 500 sheets of A4 paper, the sheet used will have to be about 570 by 390mm.

[0007] Machines that can be used in wrapping reams of paper are described in e.g. US 3750361 and US 5072572.

[0008] In such machines, a web of polymeric film is fed to a severing station where a length of film is cut off to form a sheet of sufficient size to be used as a wrapper around a stack of paper. The stack of paper is then placed on the sheet and the sheet is then folded over the top of the stack to overlap on itself and form a rectangular tube along the length of the stack and overlapping it at each

end. Heat is then applied to form an overlapped girth seal along the sheet where the sheet has been coated with a heat sealable coating or a hot melt glue system may be used in forming the seal. Each end of the tube is then tucked in and folded to form a so-called envelope seal with two overlapping trapezoidal shaped flaps. Heat is then applied to form a seal at each end of the wrapped stack where the sheet has been coated with a heat sealable coating to seal the two flaps at each end to one another or the flaps may be sealed using a hot melt glue system.

[0009] It is known to provide lines of weakness in package wrappers to make them easy to open.

[0010] Such arrangements are disclosed e.g. in US 3379364 and in a co-pending application of the present applicant published as US 2005/0050851. However the arrangements that are disclosed are all designed to open packages across their width, and are designed primarily for removing an overwrap from around an already packaged article such as cigarettes in packets or cartons.

[0011] EP 627362 discloses an arrangement without lines of weakness for providing easy to open packages of relatively small articles such as magnetic tape cassettes and video cassettes. In one example (see Fig. 14), this is done by providing weakly bonded regions along a girth seal and means to initiate a split along the weakly bonded portion.

[0012] GB 458375 discloses an arrangement where a wrapping blank is used which has a box pleat provided along the whole length of the blank. The wrapper is folded in to a U-shape about the article to be enclosed and the side folds of the wrapper are then formed and secured. The end of the package is closed by end folds and end flaps. The outer end fold has slits formed adjacent to the pleat and the package can be opened by initiating tearing at the slits so that the tear propagates along each side of the pleat.

[0013] GB 2 289 879 discloses a packaged stack of sheets according to the preamble of appended claim 1.

[0014] The problem of providing easy opening arrangements for reams of papers wrapped in polymeric films is one of providing an arrangement which does not interfere with the need to maintain the structural integrity and sealed condition of the package during handling while providing a simple and economic solution that is easy to use with existing ream wrap packaging machines.

[0015] We have now found that this can be done by the careful positioning of at least one line of weakness along the length of the sheet used to wrap the paper.

[0016] The present invention consists in a ream wrap package comprising a ream of paper wrapped in a sheet of a wrapping substrate, the sheet having one or more lines of weakness arranged along the sheet, wherein the line or lines of weakness is or are arranged and positioned so that when the wrapped ream is flexed about a longitudinal axis, the sheet parts along the one or more lines of weakness and is opened in a controlled manner.

[0017] It is essential to select the position for any lines

of weakness on the sheet so that when the wrapped package is formed the line or lines are positioned along the length of a region of the sheet so that when the sheet is wrapped around the stack of paper, the lines extend into the flaps at each end of the package where the formation of the envelope seals results in an overlapping area formed from two layers of film and not where five layers of film overlap.

[0018] Described herein is a method of forming a package which is an easy to open wrapped ream of paper formed by wrapping a sheet of polymeric film around a stack of paper, the sheet having been severed from a web of polymeric film having at least one line of weakness formed therein in the machine direction (MD) and within a region of the transverse direction (TD) the package being formed by wrapping the sheet around the stack of paper to form a rectangular tube with cut sides overlapping, sealing one side to the other to form a girth seal, closing the tube at each end to form an envelope seal with tucked in ends and overlapping flaps, at least one of which is trapezoidal so that in the formed package there is at least one line of weakness extending along the whole length of a surface of the package outside the girth seal, the line of weakness being positioned so that it terminates at each end of the package within a region of the TD defined by that portion of the overlapping flaps where there are only two layers of overlapping film.

[0019] Preferably, both overlapping flaps are trapezoidal, which will be the case when the tube ends are tucked in below both flaps. However, if one flap is tucked in first it will be a rectangular flap, and only once the remaining tube ends are then tucked in will the final overlapping flap be trapezoidal.

[0020] A method of forming a package is also described, in which at least one line of weakness is provided on one surface of the package terminating at the ends of the outer flaps and extending along that surface of the package, and at least one further line is provided along the other surface of the package and extending to the end of each flap of the envelope seal formed by folding in that surface, any line being within a region defined by that portion of the overlapping flaps where there are only two layers of film.

[0021] The lines can be arranged on both surfaces so that any line of weakness on one surface where it extends into the flaps on that surface is aligned with a line as it extends into the flaps on the other surface.

[0022] The present description is also directed to a method of forming an easy to open wrapped ream of paper that is opened by causing the package to open along lines of weakness, in which a web of polymeric film having at least two pairs of lines of weakness formed thereon in the MD is severed to form sheets and a package is formed by wrapping a sheet around the paper to form a rectangular tube with the cut sides overlapping, sealing the film within the overlap, and wrapping the ends of the tube about the paper so as to form a sealed package with an envelope seal formed from each end of the

tube with tucked in ends and overlying flaps, the pairs of lines of weakness being positioned so that one pair of lines extends along a surface of the package and to the outer end of each flap formed by folding in that surface, the lines extending to the end of each flap and avoiding the tucked in ends of the envelope seal, the other pair of lines extending along the other surface of the package and to the outer end of each flap formed by folding in that surface, the lines extending to the outer end of each flap and avoiding the tucked in ends of the envelope seal, the pairs of lines overlapping each other where the respective flaps are sealed to one another at each envelope seal.

[0023] Pairs of lines when provided on each surface are preferably arranged so as to be aligned when the respective flaps are sealed to each other at each envelope seal in forming the ream wrap package.

[0024] In a preferred embodiment, a paper stack is wrapped in a polymeric film wrapper, the wrapper enclosing the paper stack in a manner to provide overlapped sealing regions of the wrapper, the polymeric film wrapper having at least one line of weakness formed therein, the at least one line of weakness being positioned on the wrapper such that the degree of overlap of the polymeric wrapper in the region of the at least one line of weakness is not more than two overlapped film layers.

[0025] Means may also be provided to enable the package to be opened by initiating tearing along the lines of weakness.

[0026] Such means can include a tab formed in or adhered to the wrapped sheet

[0027] In the case of a package formed from a sheet of film provided with a heat sealable coating, the means to initiate tearing can be provided by an area within or about the pairs of lines at the outer end of one or both pairs of flaps which is printed or overlacquered so that when the flaps are sealed together, the printed or overlacquered area forms a weaker part of the envelope seal.

[0028] Alternatively a notch or slit is provided at one or both outer flaps where a line of weakness terminates.

[0029] The printed area can also be used to provide a mark to indicate an opening direction.

[0030] Lines of weakness can be made by any suitable methods for example by mechanical scoring (e.g. with a controlled blade or roller to apply pressure to the film surface), by cut or scored perforations, by non contact means such as laser or other radiation to ablate and/or burn off a thickness of film (e.g. as described in U.S. Pat. No. 3,909,582; U.S. Pat. No. 5,630,308 (both American Can) or U.S. Pat. No. 5,010,325 and U.S. Pat. No. 5,010,231 (both LPP)); by use of a laser to scramble orientation along a line on the oriented film without ablating the film surface (as described in the applicant's co-pending application PCT/EP02100075); and/or by the methods described in WO 01/15594 (Hoechst) or WO 01/94098 (University of Warwick).

[0031] The lines of weakness can be formed before the sheets of film to be used in wrapping a ream of paper

are severed from a web or roll of the film. Methods include:

- (a) As a web is rolled up from the line on which the film was produced from a polymeric material.
- (b) During printing of a web.
- (c) As a web is being fed to the packaging machine.

[0032] The term polymeric films is used herein to refer one or more of any of the following: polymeric materials: synthetic paper, films made from organic polymers, preferably biopolymers, more preferably films made from one or more suitable carbohydrates; polysaccharides (such as starch, cellulose, glycogen, hemi-cellulose, chitin, fructan inulin; lignin and/or pectic substances); gums; proteins, optionally cereal, vegetable and/or animal proteins (such as gluten [e.g. from wheat], whey protein, and/or gelatin); colloids (such as hydro-colloids, for example natural hydrocolloids, e.g. gums); polylactic, polygalactic and/or cellulosic films (e.g. microbial and/or re-generated cellulose film); thermoplastic films; polymeric films (for example films comprising: polyolefins [e.g. polypropylene and/or polyethylene] polyurethanes, polyvinylhalides [e.g. PVC], polyesters [e.g. polyethylene terephthalate -PET], polyamides [e.g. nylons] and/or non-hydrocarbon polymers); and/or multilayer and/or composite sheets formed by any suitable combinations and/or mixtures thereof. The substrate may also be paper.

[0033] Preferred films for use in the present invention may be produced from a variety of synthetic polymers, for example may be polyolefin based films, e.g. polyethylene based, polypropylene based or made from polystyrene, or they may be polyester based films. Furthermore, films of the present invention may be in the form of monolayers of a particular polymer, although preferred films comprise two or more layers which can be formed by coextrusion and/or by laminating..

[0034] Biaxially oriented polypropylene (BOPP) films are preferred for producing films to be cut into sheets for use in the methods in accordance with the present invention. It is more preferred that the BOPP films have substantially balanced physical properties, for example as can be produced using substantially equal machine direction and transverse direction stretch ratios. Although sequential stretching can be used, in which heated rollers effect stretching of the film in the machine direction and a stenter oven is thereafter used to effect stretching in the transverse direction, it is generally preferred to use biaxially oriented films which have been produced by simultaneous stretching, for example using the so-called double bubble process or a simultaneous draw stenter. The machine direction and transverse direction stretch ratios are preferably in the range of from 4:1 to 10:1, and more preferably from 6:1 to 8:1.

[0035] The films used in forming the wrappers can be of a variety of thicknesses according to the requirements of the packages which are to be produced. For example they can be from about 30 to about 160 microns thick.

Clear BOPP films when used for the ream wrapping of paper are usually used at thicknesses between 50 and 60 microns.

[0036] The tear line(s) should exhibit properties (e.g. a degree of weakening therealong) which are sufficient to enable a tear once started to propagate substantially along the line(s) in which it has started without substantial deviation therefrom. Insufficient tear susceptibility will make it difficult if not impossible to start a tear therealong. However excessive tear susceptibility (e.g. too much weakening) could result in unwanted opening of the packages during normal handling. As will be appreciated by those skilled in the art, different methods of achieving tear susceptibility of the films can result in different tearability.

[0037] The sheets used to wrap the reams of paper should preferably be provided with heat sealable coatings such as an acrylic coating. Hot melt glue systems can also be used to seal the sheets to form the wrapped package.

[0038] The invention will now be described with reference to the accompanying drawings in which:

Figure 1 is a plan view of a conventional sheet of polymeric film showing fold lines to indicate how the sheet is folded about a ream of paper.

Figure 1a is a perspective view from above of a wrapped ream of paper formed by wrapping a ream of paper in the sheet of polymeric film depicted in Figure 1.

Figure 1b is a perspective view from below the wrapped ream of paper shown in Figure 1a, this view showing the girth seal.

Figure 2 is a plan view of a sheet of polymeric film in accordance with the invention showing detail as for the conventional film of Figure 1 but also showing the position of a single line of weakness applied to the sheet relative to the position of the fold lines.

Figure 2a is a perspective view from above of a wrapped ream of paper formed by wrapping a ream of paper in the sheet of polymeric film depicted in Figure 2.

Figure 2b is a perspective view from below the wrapped ream of paper shown in Figure 2a, this view showing the girth seal.

Figure 3 is a plan view of a sheet of polymeric film in accordance with the invention showing detail as for the conventional film of Figure 1 but also showing the position of two lines of weakness applied to the sheet relative to the position of the fold lines.

Figure 3a is a perspective view from above of a

wrapped ream of paper formed by wrapping a ream of paper in the sheet of polymeric film depicted in Figure 3.

Figure 3b is a perspective view from below the wrapped ream of paper shown in Figure 3a, this view showing the girth seal.

Figure 4 is a plan view of a sheet of polymeric film in accordance with the invention showing detail as for the conventional film of Figure 1 but also showing an alternative position of two lines of weakness applied to the sheet relative to the position of the fold lines.

Figure 4a is a perspective view from above of a wrapped ream of paper formed by wrapping a ream of paper in the sheet of polymeric film depicted in Figure 4.

Figure 4b is a perspective view from below the wrapped ream of paper shown in Figure 4a, this view showing the girth seal.

Figure 5 is a plan view of a sheet of polymeric film in accordance with the invention showing detail as for the conventional film of Figure 1 but also showing the position of four lines of weakness applied to the sheet relative to the position of the fold lines.

Figure 5a is a perspective view from above of a wrapped ream of paper formed by wrapping a ream of paper in the sheet of polymeric film depicted in Figure 5.

Figure 5b is a perspective view from below the wrapped ream of paper shown in Figure 5a, this view showing the girth seal.

Figure 6 is a plan view of a sheet of polymeric film in accordance with the invention showing detail as for the conventional film of Figure 1 but also showing an alternative position of four lines of weakness applied to the sheet relative to the position of the fold lines.

Figure 6a is a perspective view from above of a wrapped ream of paper formed by wrapping a ream of paper in the sheet of polymeric film depicted in Figure 6.

Figure 6b is a perspective view from below the wrapped ream of paper shown in Figure 6a, this view showing the girth seal.

[0039] Referring to Figures 1, 1a and 1b, sheet 1 is folded around a ream of paper by folding the sheet so that edge 2 overlaps edge 3 thus forming a rectangular

tube around the ream of paper. The overlapping parts of the sheet are sealed together to form girth seal 4, shown in Figure 1b. Each end of the rectangular tube is then tucked in to form an envelope seal at each end with flaps 5 and 5' overlapping the flaps formed by 6 and 6'. The shaded regions indicate the flaps. In the wrapped ream there will over most of the shaded region be only two layers of film at the envelope seals. However, there will be a region of overlap at the girth seal where three film layers overlap in the final envelope seal. Towards the edges of the envelope seals there may at some places be five overlapping film layers.

[0040] Alternatively, but with substantially the same result regarding the region of the seals comprising only two layers of film, after formation of girth seal 4 flaps 6 and 6' may be folded in as rectangular flaps and then each end of the tube is tucked in to form the envelope seal. Trapezoidal flaps 5 and 5' are then folded down over the tucked in ends and the rectangular flap.

[0041] Referring to Figures 2, 2a and 2b, a single line of weakness 27 is formed along the surface of the sheet and positioned so that it extends to the ends of the sheet whereby in the wrapped ream, as shown in Figures 2a and 2b, the line extends into region of the flaps 25 and 25' where there are only be two layers of film.

[0042] Referring to Figures 3, 3a and 3b, two lines of weakness 37 and 38 are formed along the surface of the sheet and positioned so that they extend to the ends of the sheet whereby in the wrapped ream, as shown in Figures 3a and 3b, the lines extend into region of the flaps 35 and 35' where there are only two layers of film.

[0043] Referring to Figures 4, 4a and 4b, alternative positions for the two lines of weakness 47 and 48 are shown, in which the lines are formed along the surface of the sheet and positioned so that they extend to the ends of the sheet whereby in the wrapped ream, as shown in Figures 4a and 4b, the lines extend into region of the flaps 35 and 35' where there are only two layers of film. In this embodiment lines 47 and 48 may be positioned substantially to co-align in the wrapped ream, as shown in Figure 4.

[0044] Referring to Figures 5, 5a and 5b, four lines of weakness are shown. A pair of lines of weakness 57 and 58 are formed along the surface of the sheet as shown in Figure 5 and positioned so that they extend to the ends of the sheet whereby in the wrapped ream as shown in Figures 5a and 5b the lines extend into the region of the flaps 55 and 55' where there are only two layers of film. A further pair of lines of weakness 59 and 50 are formed along the surface of the sheet as shown in Figure 5 and positioned so that they extend to the ends of the sheet whereby in the wrapped ream as shown in Figures 5a and 5b the lines extend into the region of the flaps 56 and 56' where there are only two layers of film. In the Figure 5 embodiment the lines 59 and 50 are positioned so that they co-align with the lines 57 and 58 in the wrapped ream. These lines may alternatively be arranged so that the line 59 co-aligns with line 58 and line

50 with line 57 in the wrapped ream, or there may be little or no co-alignment in some embodiments.

[0045] Referring to Figures 6, 6a and 6b, four lines of weakness are shown. A pair of lines of weakness 67 and 68 are formed along the surface of the sheet as shown in Figure 6 and positioned so that they extend to the ends of the sheet whereby in the wrapped ream as shown in Figures 6a and 6b the lines extend into the region of the flaps 65 and 65' where there are only two layers of film. A further pair of lines of weakness 69 and 60 are formed along the surface of the sheet as shown in Figure 6 and positioned so that they extend to the ends of the sheet whereby in the wrapped ream as shown in Figures 6a and 6b the lines extend into the region of the flaps 66 and 66' where there are only be two layers of film. In the Figure 6 embodiment the lines 69 and 60 are positioned so that they co-align with the lines 67 and 68 in the wrapped ream. These lines may alternatively be arranged so that the line 59 co-aligns with line 58 and line 50 with line 57 in the wrapped ream, or there may be little or no co-alignment in some embodiments.

Claims

1. A ream wrap package comprising a ream of paper wrapped in a sheet of a wrapping substrate, the sheet having one or more lines of weakness arranged along the sheet **characterised in that** the line or lines of weakness is or are arranged and positioned so that when the wrapped ream is flexed about a longitudinal axis, the sheet parts along the one or more lines of weakness and is opened in a controlled manner.
2. A ream wrap package according to claim 1 wherein the wrapping substrate is a polymeric film, and the one or more lines of weakness are provided in the machine direction of the film.
3. A ream wrap package according to claim 1 or claim 2 comprising a paper stack wrapped in a wrapper, the wrapper enclosing the paper stack in a manner to provide overlapped sealing regions of the wrapper, the at least one line of weakness being positioned on the wrapper such that the degree of overlap of the wrapper in the region of the at least one line of weakness is not more than two overlapped wrapper layers.
4. A ream wrap package according to any one of claims 1 to 3 wherein the wrapper is a polymeric film wrapper.
5. A ream wrap package according to any one of claims 1 to 4 formed by wrapping a sheet of polymeric film around a stack of paper, the sheet having been severed from a web of polymeric film having at least one

line of weakness formed therein in the machine direction (MD) and within a region of the transverse direction (TD) the package being formed by wrapping the sheet around the stack of paper to form a rectangular tube with sides overlapping, sealing one side to the other to form a girth seal, closing the tube at each end to form an envelope seal with tucked in ends and overlapping flaps, at least one of which is trapezoidal, so that in the formed package there is at least one line of weakness extending along the whole length of a surface of the package outside the girth seal, the line of weakness being positioned so that it terminates at each end of the package within a region of the TD defined by that portion of the overlapping flaps where there are only two layers of overlapping film.

6. A ream wrap package according to claim 5 wherein both overlapping flaps are trapezoidal.
7. A ream wrap package according to claim 5 or claim 6 wherein at least one first line of weakness is provided on one surface of the package terminating at the ends of the outer flaps and extending along that surface of the package, and at least one second line of weakness provided along the other surface of the package and extending to the end of each flap of the envelope seal formed by folding in that surface, any such line being within a region defined by that portion of the overlapping flaps where there are only two layers of film.
8. A ream wrap package according to claim 7 wherein the lines are arranged on both surfaces so that any first line of weakness on one surface where it extends into the flaps on that surface co-aligns with the second line of weakness as it extends into the flaps on the other surface.
9. A ream wrap package according to claim 5 or claim 6 wherein at least one first of weakness is provided on a first surface of the package terminating at the ends of the outer flaps and extending along that surface of the package, and at least one second line of weakness provided along the same surface of the package and extending to the end of each flap of the envelope seal formed by folding in that surface, any such line being within a region defined by that portion of the overlapping flaps where there are only two layers of film.
10. A ream wrap package according to claim 9 wherein the first and second lines of weakness are parallel to each other.
11. A ream wrap package according to claim 9 or claim 10 wherein the other surface of the package is provided with a pair of lines of weakness.

12. A ream wrap package according to claim 11 wherein each line of weakness in the pair co-aligns with a corresponding line of weakness on the first surface of the package.
13. A ream wrap package according to claim 11 or claim 12 wherein one line of weakness of the pair is provided towards one TD end of the film in its unwrapped condition, and the other line of weakness of the pair is provided towards the opposite TD end of the film in its unwrapped condition.
14. A ream wrap package according to claim 11 or claim 12 wherein both lines of weakness of the pair are provided towards one TD end of the film in its unwrapped condition.
15. A ream wrap package according to any one of claims 5 to 14 formed from a sheet of film provided with a heat-sealable coating and comprising means to initiate tearing provided by an area within or about the, any or each line of weakness at the outer end of one or both pairs of flaps which is printed or overlacquered so that when the flaps are sealed together, the printed or overlacquered area forms a weaker part of the envelope seal.
16. A ream wrap package according to any one of claims 5 to 15 wherein a notch or slit is provided at one or both outer flaps where a line of weakness terminates.
17. A ream wrap package according to any one of claims 1 to 16 wherein means are provided to enable the package to be opened by initiating tearing along the lines of weakness.
18. A ream wrap package according to claim 17 wherein such means comprises a tab formed in or adhered to the wrapped sheet.
19. A ream wrap package according to any one of claims 1 to 18 formed from a sheet of film provided with a heat sealable coating.

Patentansprüche

1. Rieseinschlag-Verpackung, die ein Ries aus Papier eingewickelt in einen Bogen eines Einwickelsubstrates aufweist, wobei der Bogen eine oder mehrere Schwächungslinien enthält, die entlang des Bogens angeordnet sind, **dadurch gekennzeichnet, dass** die Schwächungslinie oder -linien so angeordnet und positioniert ist oder sind, dass, wenn das eingewickelte Ries um eine Längsachse gebogen wird, der Bogen sich entlang der einen oder mehreren Schwächungslinien trennt und in einer gesteuerten Weise geöffnet wird.

2. Rieseinschlag-Verpackung nach Anspruch 1, bei der das Einwickelsubstrat eine Polymerfolie ist, und die eine oder mehreren Schwächungslinien in der Maschinenrichtung der Folie vorgesehen sind.

3. Rieseinschlag-Verpackung nach Anspruch 1 oder Anspruch 2, die einen in eine Hülle eingewickelten Papierstapel aufweist, wobei die Hülle den Papierstapel in einer Weise umschließt, um überlappende Verschlussbereiche der Hülle bereitzustellen, und die wenigstens eine Schwächungslinie so auf der Hülle positioniert ist, dass das Ausmaß der Überlappung der Hülle in dem Bereich der wenigstens einen Schwächungslinie nicht größer als zwei überlappende Hüllerschichten ist.

4. Rieseinschlag-Verpackung nach einem der Ansprüche 1 bis 3, bei der die Hülle eine Polymerfolienhülle ist.

5. Rieseinschlag-Verpackung nach einem der Ansprüche 1 bis 4, die durch Wickeln eines Bogens Polymerfolie um einen Papierstapel gebildet wird, wobei die Folie von einer Bahn aus Polymerfolie abgeschnitten wurde, die wenigstens eine darin in der Maschinenrichtung (MD) und innerhalb eines Bereichs der Querrichtung (TD) ausgebildete Schwächungslinie aufweist, wobei die Verpackung durch Wickeln des Bogens um den Papierstapel gebildet wird, um eine rechteckige Röhre mit überlappenden Seiten zu bilden, Verschweißen einer Seite mit der anderen zum Bilden eines Umfangsverschlusses, Verschließen der Röhre an jedem Ende zum Bilden eines Umschlagverschlusses, wobei die Enden nach innen gesteckt sind und die Klappen sich überlappen, von denen wenigstens eine trapezförmig ist, so dass sich in der gebildeten Verpackung wenigstens eine Schwächungslinie befindet, die sich über die gesamte Länge einer Oberfläche der Verpackung außerhalb des Umfangsverschlusses erstreckt, wobei die Schwächungslinie so positioniert ist, dass sie an jedem Ende der Verpackung innerhalb eines Bereichs des durch diesen Teil der überlappenden Klappen begrenzten TD endet, wo sich nur zwei Schichten von überlappender Folie befinden.

6. Rieseinschlag-Verpackung nach Anspruch 5, bei der beide sich überlappende Klappen trapezförmig sind.

7. Rieseinschlag-Verpackung nach Anspruch 5 oder Anspruch 6, bei der wenigstens eine erste Schwächungslinie auf einer Oberfläche der Verpackung vorgesehen ist, die an den Enden der äußeren Klappen endet und sich entlang dieser Oberfläche der Verpackung erstreckt, und wenigstens eine zweite Schwächungslinie entlang der anderen Oberfläche

der Verpackung vorgesehen ist und sich zu dem Ende jeder Klappe des durch Falten dieser Oberfläche nach innen gebildeten Umschlagsverschlusses erstreckt, wobei sich eine jegliche solche Linie in einem Bereich befindet, der durch den Teil der sich überlappenden Klappen begrenzt wird, wo sich nur zwei Folienschichten befinden.

8. Rieseinschlag-Verpackung nach Anspruch 7, bei der die Linien auf beiden Oberflächen so angeordnet sind, dass sich eine jegliche erste Schwächungslinie auf einer Oberfläche, wo sie sich in die Klappen auf dieser Oberfläche erstreckt, gemeinsam mit der zweiten Schwächungslinie ausrichten, wenn sich diese in die Klappen auf der anderen Oberfläche erstreckt. 10
9. Rieseinschlag-Verpackung nach Anspruch 5 oder Anspruch 6, bei der wenigstens eine erste Schwächungslinie auf einer ersten Oberfläche der Verpackung vorgesehen ist, die an den Enden der äußeren Klappen endet und sich entlang dieser Oberfläche der Verpackung erstreckt, und wenigstens eine zweite Schwächungslinie entlang der selben Oberfläche der Verpackung vorgesehen ist und sich zu dem Ende jeder Klappe des durch Falten dieser Oberfläche nach innen gebildeten Umschlagsverschlusses erstreckt, wobei sich eine jegliche solche Linie innerhalb eines Bereichs befindet, der durch den Teil der sich überlappenden Klappen begrenzt wird, wo sich nur zwei Folienschichten befinden. 15
10. Rieseinschlag-Verpackung nach Anspruch 9, bei der die erste und zweite Schwächungslinie parallel zueinander sind. 20
11. Rieseinschlag-Verpackung nach Anspruch 9 oder Anspruch 10, bei der die andere Oberfläche der Verpackung mit einem Paar von Schwächungslinien versehen ist. 25
12. Rieseinschlag-Verpackung nach Anspruch 11, bei der sich jede Schwächungslinie in dem Paar gemeinsam mit einer entsprechenden Schwächungslinie auf der ersten Oberfläche der Verpackung ausrichtet. 30
13. Rieseinschlag-Verpackung nach Anspruch 11 oder Anspruch 12, bei der eine Schwächungslinie des Paares in Richtung eines TD-Endes der Folie in ihrem nicht gewickelten Zustand vorgesehen ist, und die andere Schwächungslinie des Paares in Richtung des entgegen gesetzten TD-Endes der Folie in ihrem nicht gewickelten Zustand vorgesehen ist. 35
14. Rieseinschlag-Verpackung nach Anspruch 11 oder Anspruch 12, bei der beide Schwächungslinien des Paares in Richtung eines TD-Endes der Folie in ihrem

nicht gewickelten Zustand vorgesehen sind.

15. Rieseinschlag-Verpackung nach einem der Ansprüche 5 bis 14, die aus einem mit einem heißverschweißbaren Überzug versehenen Folienbogen gebildet wird und Mittel zum Veranlassen von Reißen aufweist, welche durch einen Bereich innerhalb oder um die, eine jegliche oder jede Schwächungslinie an dem äußeren Ende eines oder beider Paare von Klappen vorgesehen sind, der bedruckt oder überlackiert ist, so dass, wenn die Klappen miteinander verschweißt werden, der bedruckte oder überlackierte Bereich schwächere Teil des Umschlagsverschlusses bildet. 40
16. Rieseinschlag-Verpackung nach einem der Ansprüche 5 bis 15, bei der eine Kerbe oder ein Schlitz an einer oder beiden äußeren Klappen vorgesehen ist, wo eine Schwächungslinie endet. 45
17. Rieseinschlag-Verpackung nach einem der Ansprüche 1 bis 16, bei der Mittel vorgesehen sind, um Öffnen der Packung durch Veranlassen von Reißen entlang der Schwächungslinien zu ermöglichen. 50
18. Rieseinschlag-Verpackung nach Anspruch 17, bei der ein solches Mittel einen Streifen aufweist, der in dem gewickelten Bogen ausgebildet ist oder an demselben geklebt wird. 55
19. Rieseinschlag-Verpackung nach einem der Ansprüche 1 bis 18, der aus einem mit einem heißverschweißbaren Überzug versehenen Folienbogen gebildet wird.

Revendications

1. Conditionnement de type emballage pour rame comportant une rame de papier emballée dans une feuille d'un support d'emballage, la feuille ayant une ou plusieurs lignes de moindre résistance arrangées le long de la feuille, **caractérisé en ce que** la(les) ligne(s) de moindre résistance est(sont) arrangée(s) et positionnée(s) de sorte que, quand la rame emballée est fléchée autour d'un axe longitudinal, la feuille se sépare le long desdites une ou plusieurs lignes de moindre résistance et est ouverte d'une manière contrôlée.
2. Conditionnement de type emballage pour rame selon la revendication 1, dans lequel le support d'emballage est un film polymère, et lesdites une ou plusieurs lignes de moindre résistance sont mises en oeuvre dans le sens machine du film.
3. Conditionnement de type emballage pour rame selon la revendication 1 ou la revendication 2, compor-

tant une pile de papier emballée dans un matériau d'emballage, le matériau d'emballage renfermant la pile de papier de manière à mettre en oeuvre des régions de scellage en chevauchement du matériau d'emballage, ladite au moins une ligne de moindre résistance étant positionnée sur le matériau d'emballage de telle manière que le degré de chevauchement du matériau d'emballage dans la région de ladite au moins une ligne de moindre résistance ne fait pas plus de deux couches de matériau d'emballage en chevauchement.

4. Conditionnement de type emballage pour rame selon l'une quelconque des revendications 1 à 3, dans lequel le matériau d'emballage est un matériau d'emballage en film polymère.

5. Conditionnement de type emballage pour rame selon l'une quelconque des revendications 1 à 4, formé par l'emballage d'une feuille de film polymère autour d'une pile de papier, la feuille ayant été séparée d'une bande de film polymère ayant au moins une ligne de moindre résistance formée dans celle-ci dans le sens machine (MD) et à l'intérieur d'une région du sens transversal (TD) l'emballage étant formé par l'emballage de la feuille autour de la pile de papier pour former un tube rectangulaire dont les côtés se chevauchent, par le scellage d'un côté sur l'autre pour former un scellage circonférentiel, par la fermeture du tube à chaque extrémité pour former un scellage de type enveloppe avec extrémités rentrées et rabats se chevauchant, au moins l'un d'entre eux étant trapézoïdal, de sorte que dans le conditionnement formé il y a au moins une ligne de moindre résistance s'étendant sur toute la longueur d'une surface du conditionnement à l'extérieur du scellage circonférentiel, la ligne de moindre résistance étant positionnée de sorte qu'elle se termine à chaque extrémité du conditionnement à l'intérieur d'une région du TD définie par cette partie des rabats se chevauchant où il y a uniquement deux couches de film se chevauchant.

6. Conditionnement de type emballage pour rame selon la revendication 5, dans lequel les deux rabats se chevauchant sont trapézoïdaux.

7. Conditionnement de type emballage pour rame selon la revendication 5 ou la revendication 6, dans lequel au moins une première ligne de moindre résistance est mise en oeuvre sur une surface du conditionnement se terminant aux extrémités des rabats extérieurs et s'étendant le long de cette surface du conditionnement, et au moins une deuxième ligne de moindre résistance mise en oeuvre le long de l'autre surface du conditionnement et s'étendant jusqu'à l'extrémité de chaque rabat du scellage de type enveloppe formé par repliage de cette surface, toute

telle ligne étant à l'intérieur d'une région définie par cette partie des rabats se chevauchant où il y a uniquement deux couches de film.

8. Conditionnement de type emballage pour rame selon la revendications 7, dans lequel les lignes sont arrangées sur les deux surfaces de sorte que toute première ligne de moindre résistance sur une surface où elle s'étend jusque dans les rabats sur cette surface est co-alignée sur la deuxième ligne de moindre résistance alors qu'elle s'étend jusque dans les rabats sur l'autre surface.

9. Conditionnement de type emballage pour rame selon la revendications 5 ou la revendication 6, dans lequel au moins une première ligne de moindre résistance est mise en oeuvre sur une première surface du conditionnement se terminant aux extrémités des rabats extérieurs et s'étendant le long de cette surface du conditionnement, et au moins une deuxième ligne de moindre résistance mise en oeuvre le long de la même surface du conditionnement et s'étendant jusqu'à l'extrémité de chaque rabat du scellage de type enveloppe formé par repliage de cette surface, toute telle ligne étant à l'intérieur d'une région définie par cette partie des rabats se chevauchant où il y a uniquement deux couches de film.

10. Conditionnement de type emballage pour rame selon la revendication 9, dans lequel la première ligne de moindre résistance et la deuxième ligne de moindre résistance sont parallèles l'une par rapport à l'autre.

11. Conditionnement de type emballage pour rame selon la revendication 9 ou la revendication 10, dans lequel l'autre surface du conditionnement est munie d'une paire de lignes de moindre résistance.

12. Conditionnement de type emballage pour rame selon la revendication 11, dans lequel chaque ligne de moindre résistance dans la paire est co-alignée sur une ligne de moindre résistance correspondante sur la première surface du conditionnement.

13. Conditionnement de type emballage pour rame selon la revendication 11 ou la revendication 12, dans lequel une ligne de moindre résistance de la paire est mise en oeuvre vers une extrémité TD du film dans son état déballé, et l'autre ligne de moindre résistance de la paire est mise en oeuvre vers l'extrémité TD opposée du film dans son état déballé.

14. Conditionnement de type emballage pour rame selon la revendications 11 ou la revendication 12, dans lequel les deux lignes de moindre résistance de la paire sont mises en oeuvre vers une extrémité TD

du film dans son état déballé.

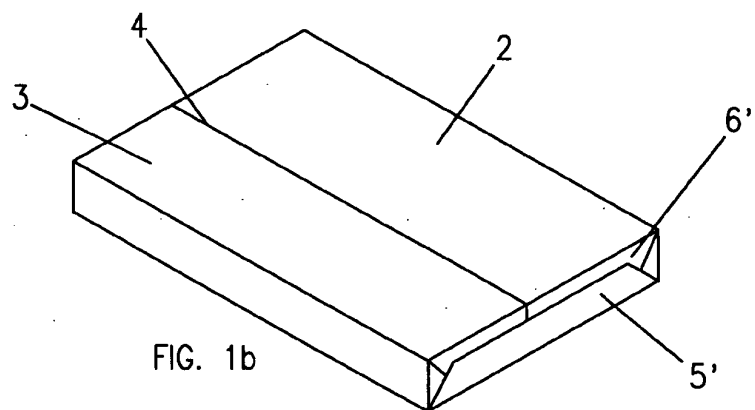
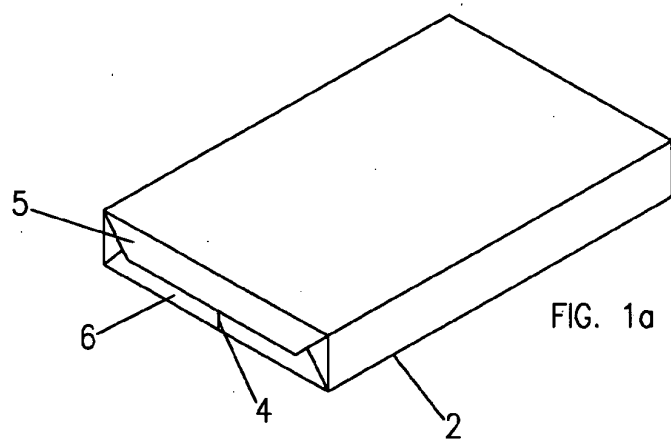
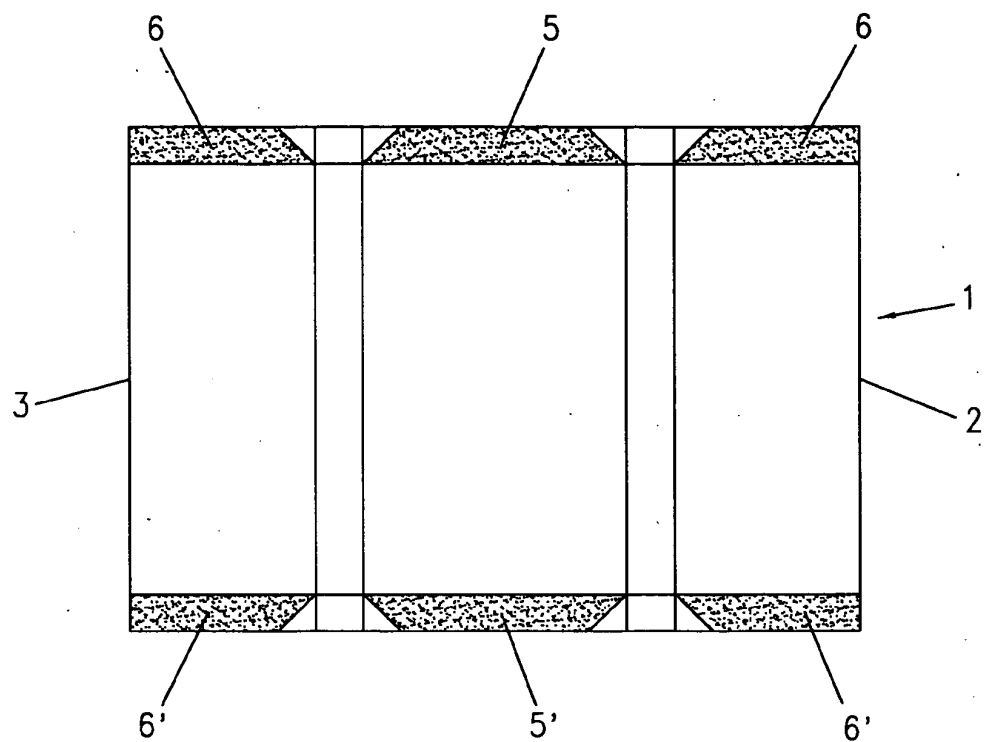
- 15.** Conditionnement de type emballage pour rame selon l'une quelconque des revendications 5 à 14, formé à partir d'une feuille de film munie d'un revêtement thermoscellable et comportant un moyen permettant d'amorcer le déchirement mis en oeuvre par une zone à l'intérieur ou autour de la, de toute ou de chaque ligne de moindre résistance au niveau de l'extrémité extérieure de l'une ou des deux paires de rabats qui est imprimée ou vernie par surimpression de sorte que, quand les rabats sont scellés ensemble, la zone imprimée ou vernie par surimpression constitue une partie de moindre résistance du scellage de type enveloppe. 5 10 15
- 16.** Conditionnement de type emballage pour rame selon l'une quelconque des revendications 5 à 15, dans lequel une entaille, ou fente, est mise en oeuvre au niveau d'un ou des deux rabats extérieurs où une ligne de moindre résistance se termine. 20
- 17.** Conditionnement de type emballage pour rame selon l'une quelconque des revendications 1 à 16, dans lequel des moyens sont mis en oeuvre pour permettre l'ouverture du conditionnement par l'amorçage du déchirement le long des lignes de moindre résistance. 25
- 18.** Conditionnement de type emballage pour rame selon la revendication 17, dans lequel un tel moyen compote une languette formée dans la feuille emballée ou collée à celle-ci. 30
- 19.** Conditionnement de type emballage pour rame selon l'une quelconque des revendications 1 à 18, formé à partir d'une feuille de film mise en oeuvre avec un revêtement thermoscellable. 35

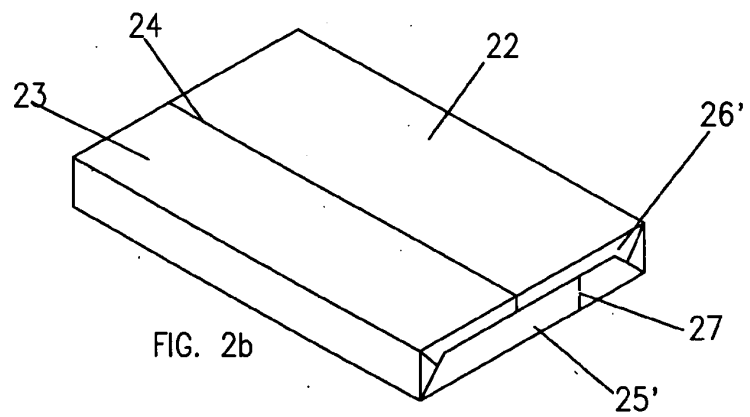
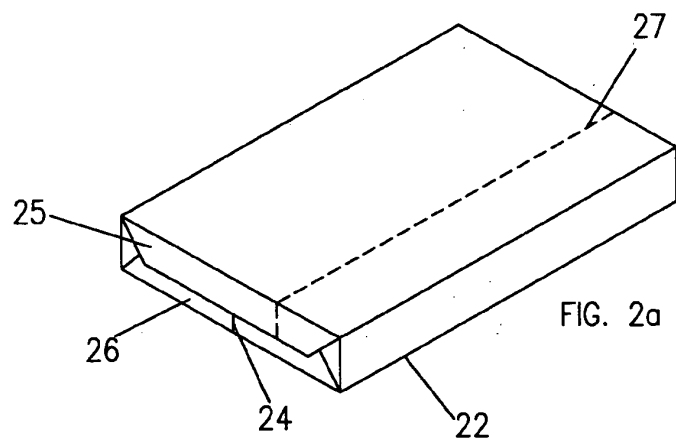
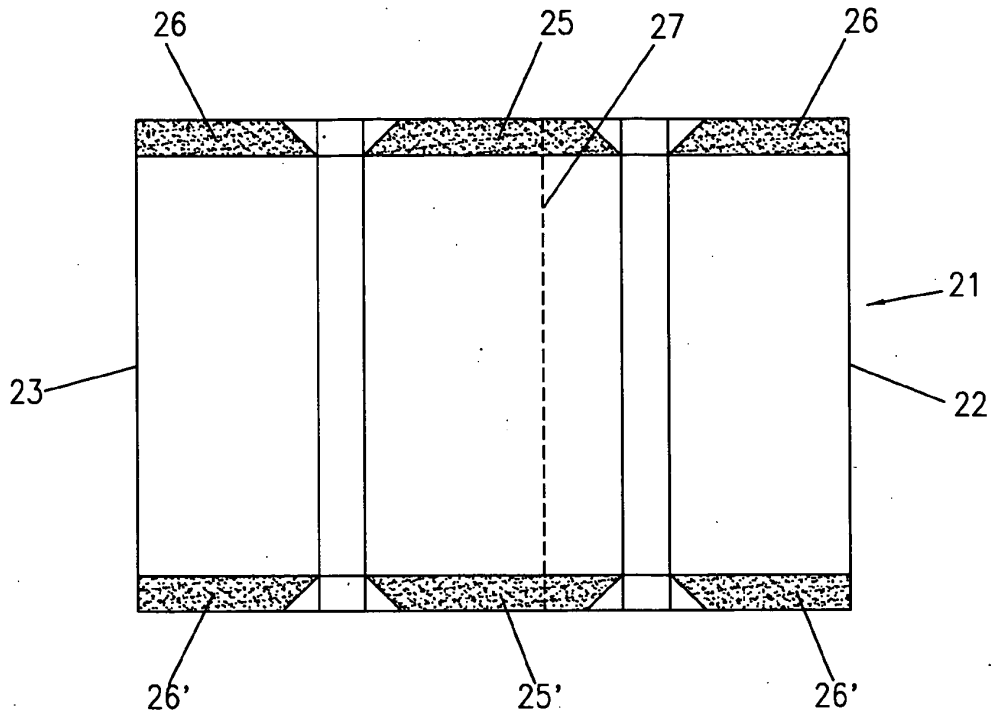
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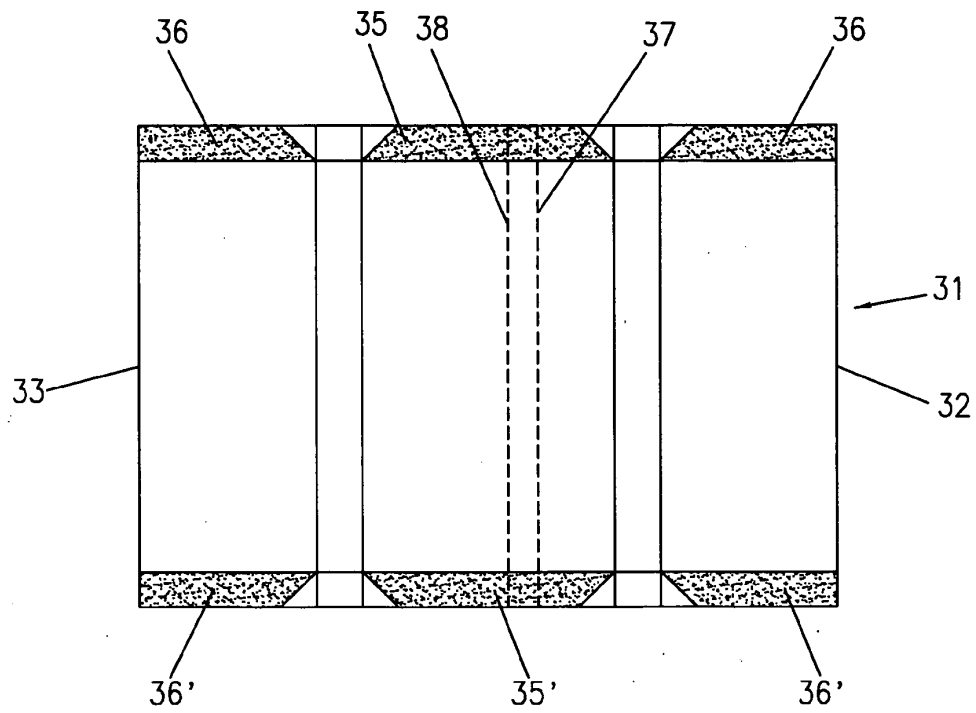


FIG. 3

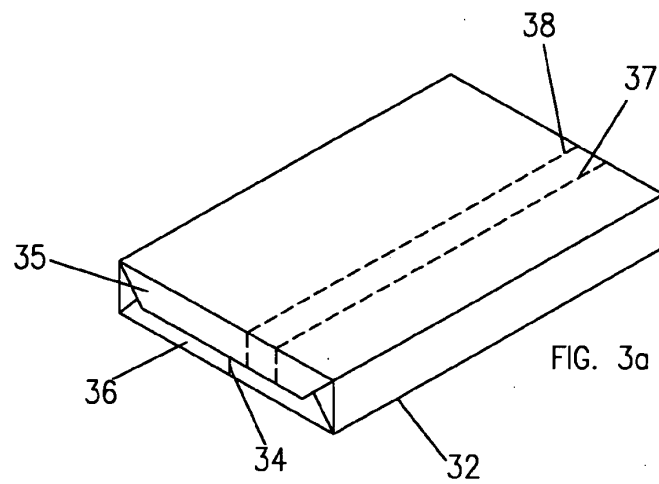


FIG. 3a

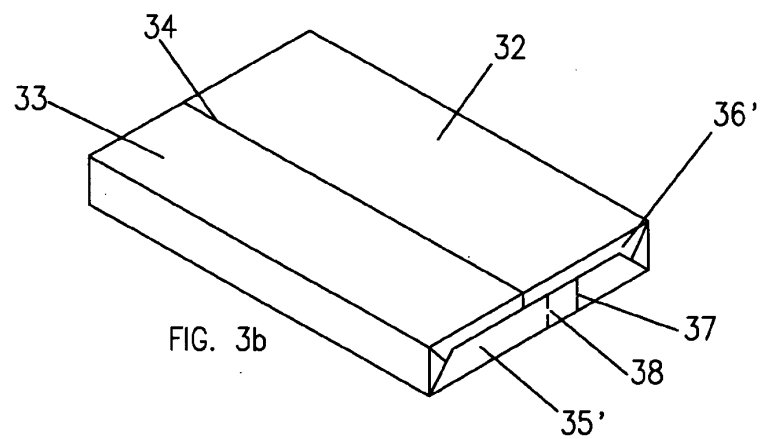
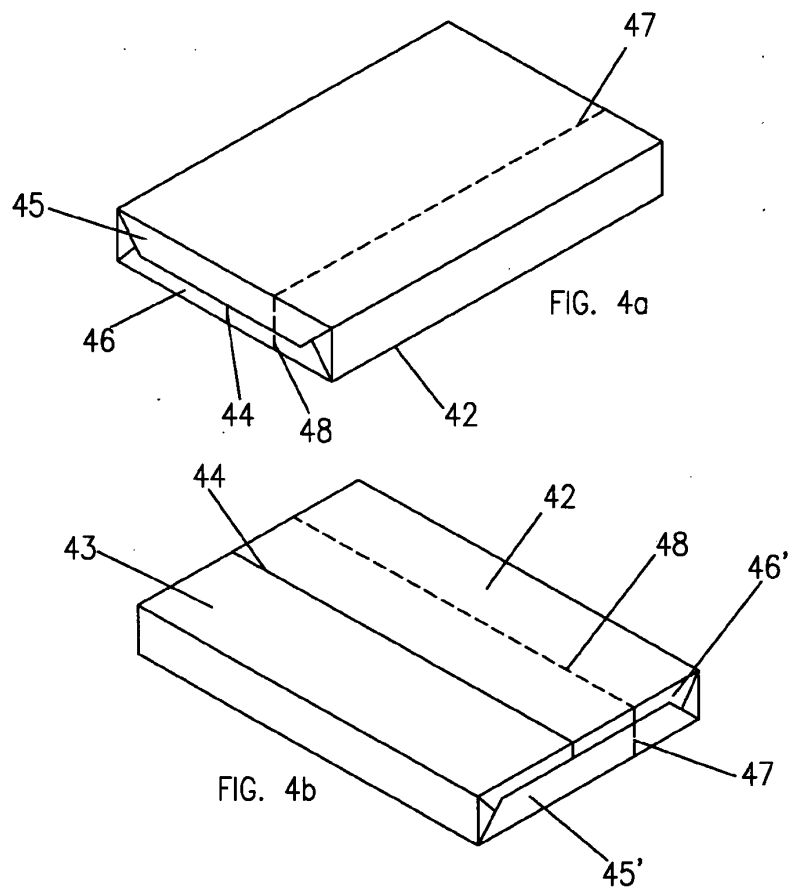
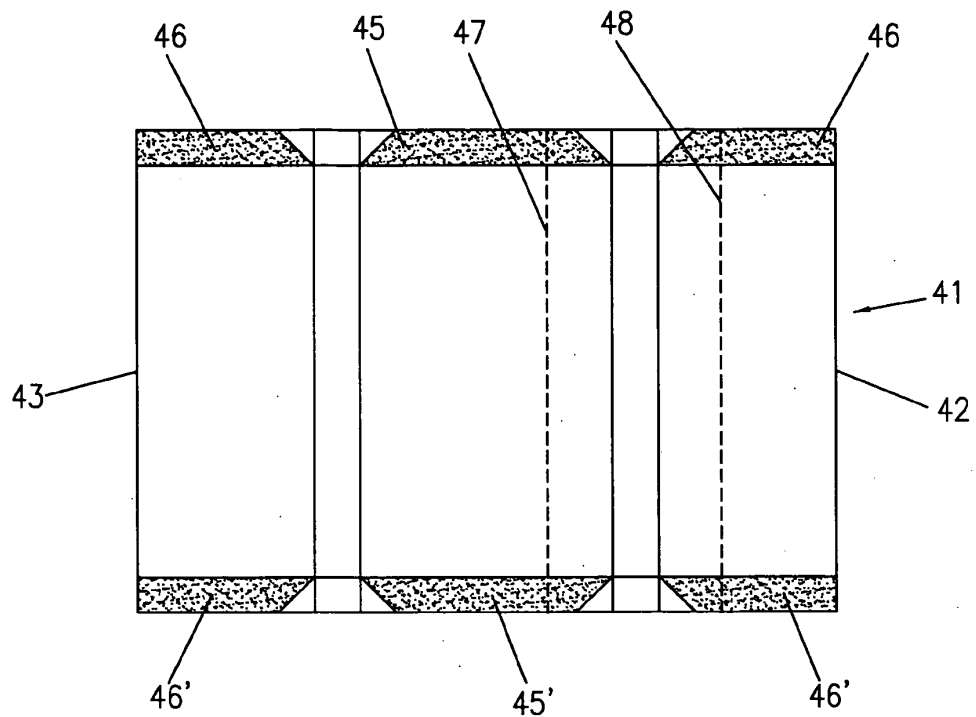
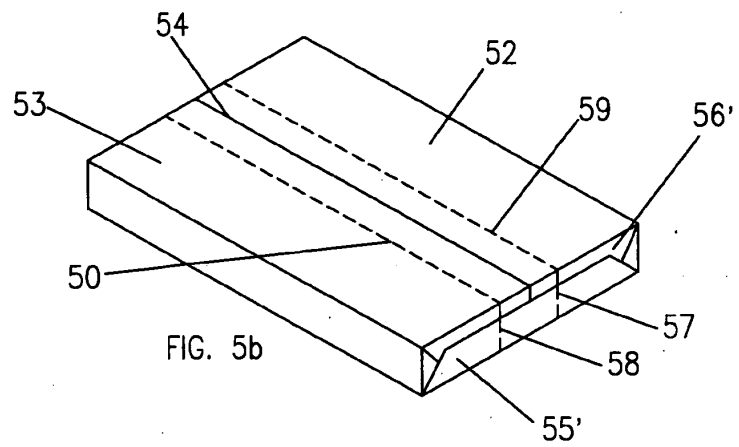
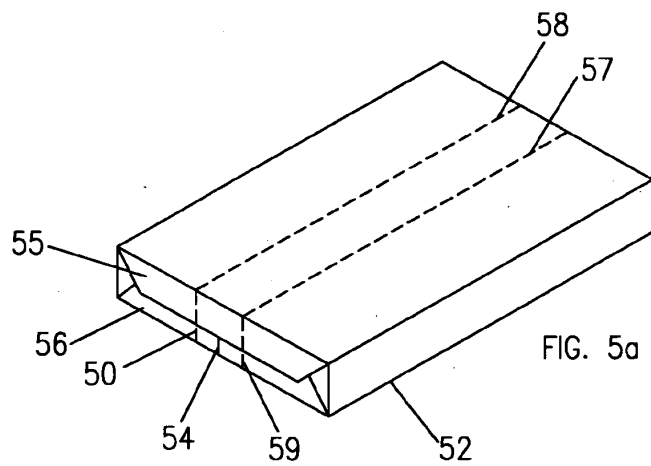
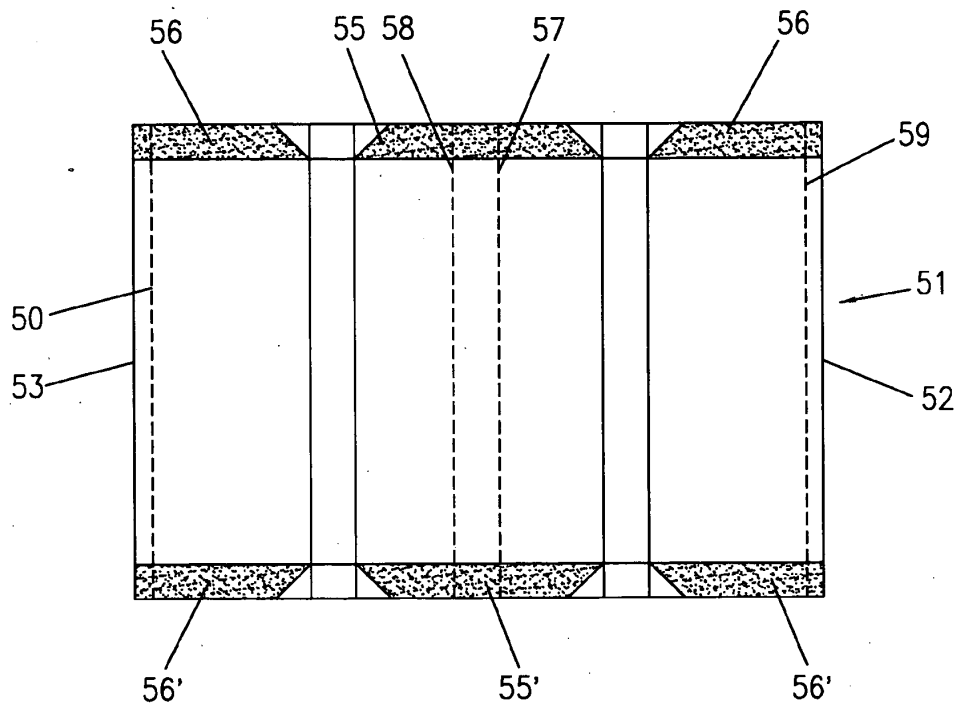
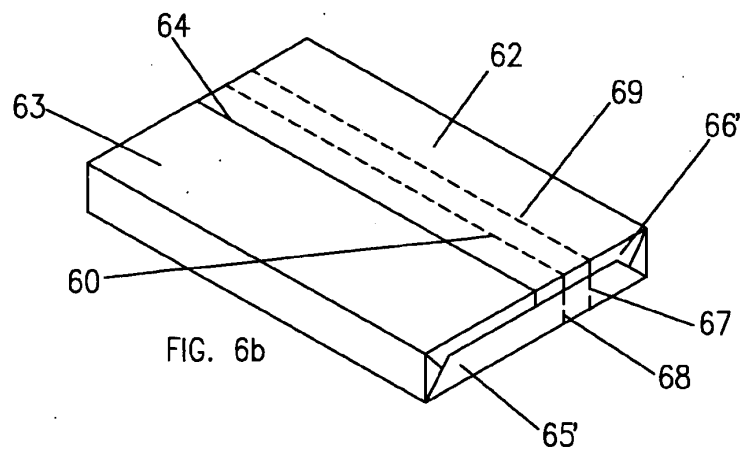
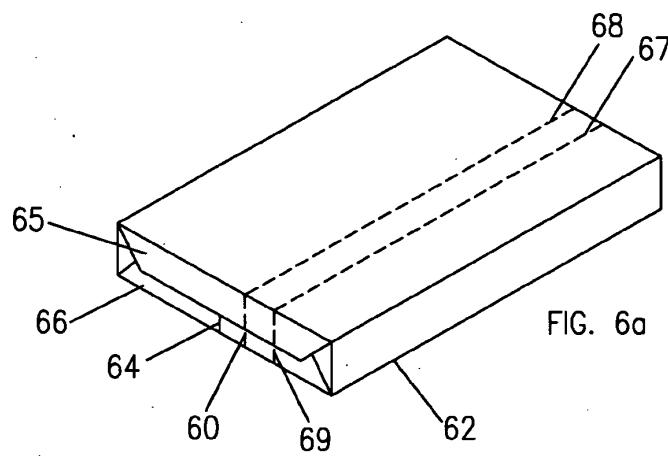
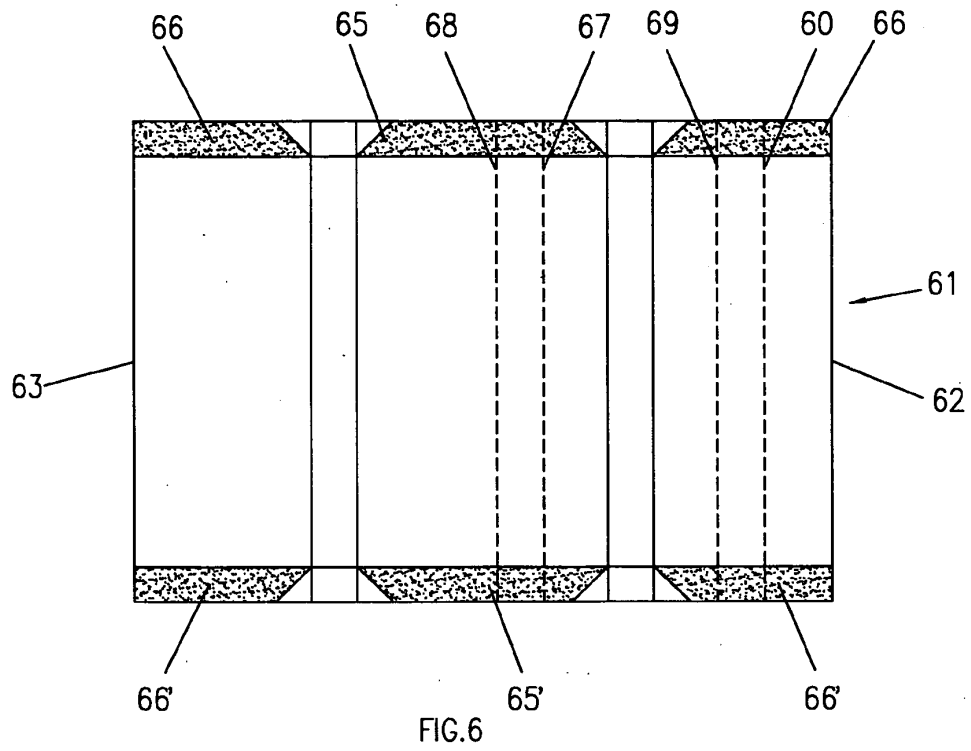


FIG. 3b







REFERENCES CITED IN THE DESCRIPTION

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